Hybrid Power System Types

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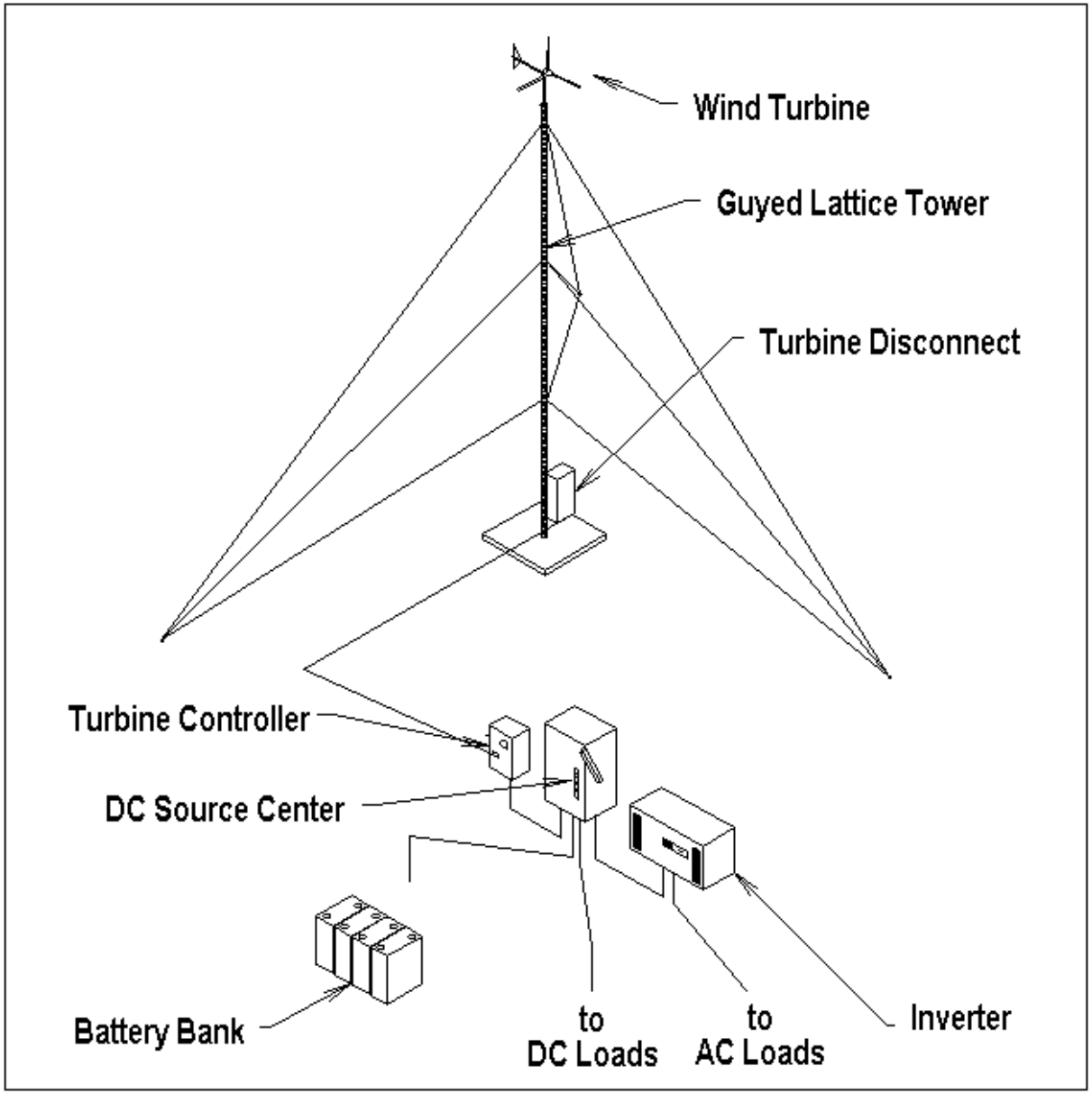
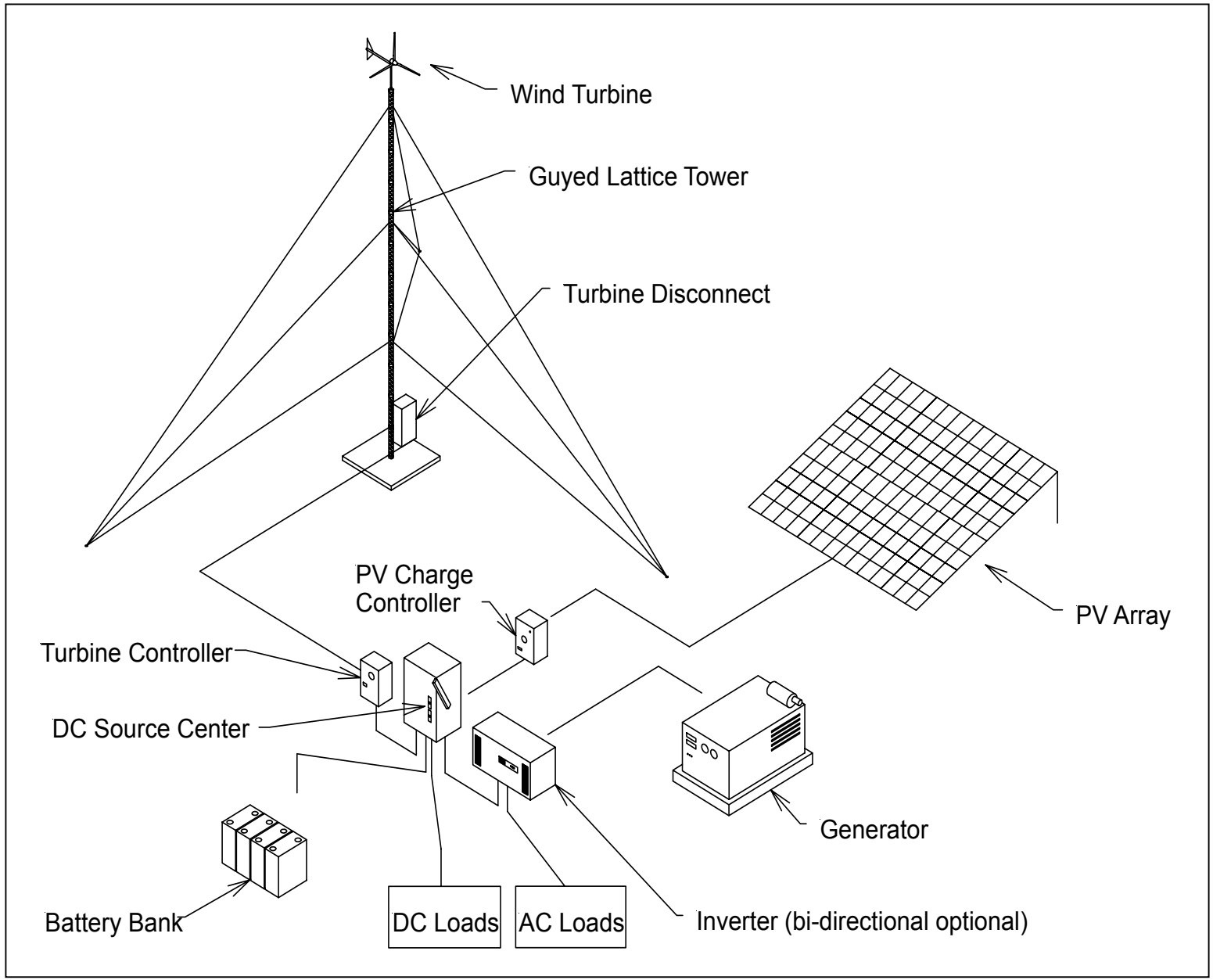
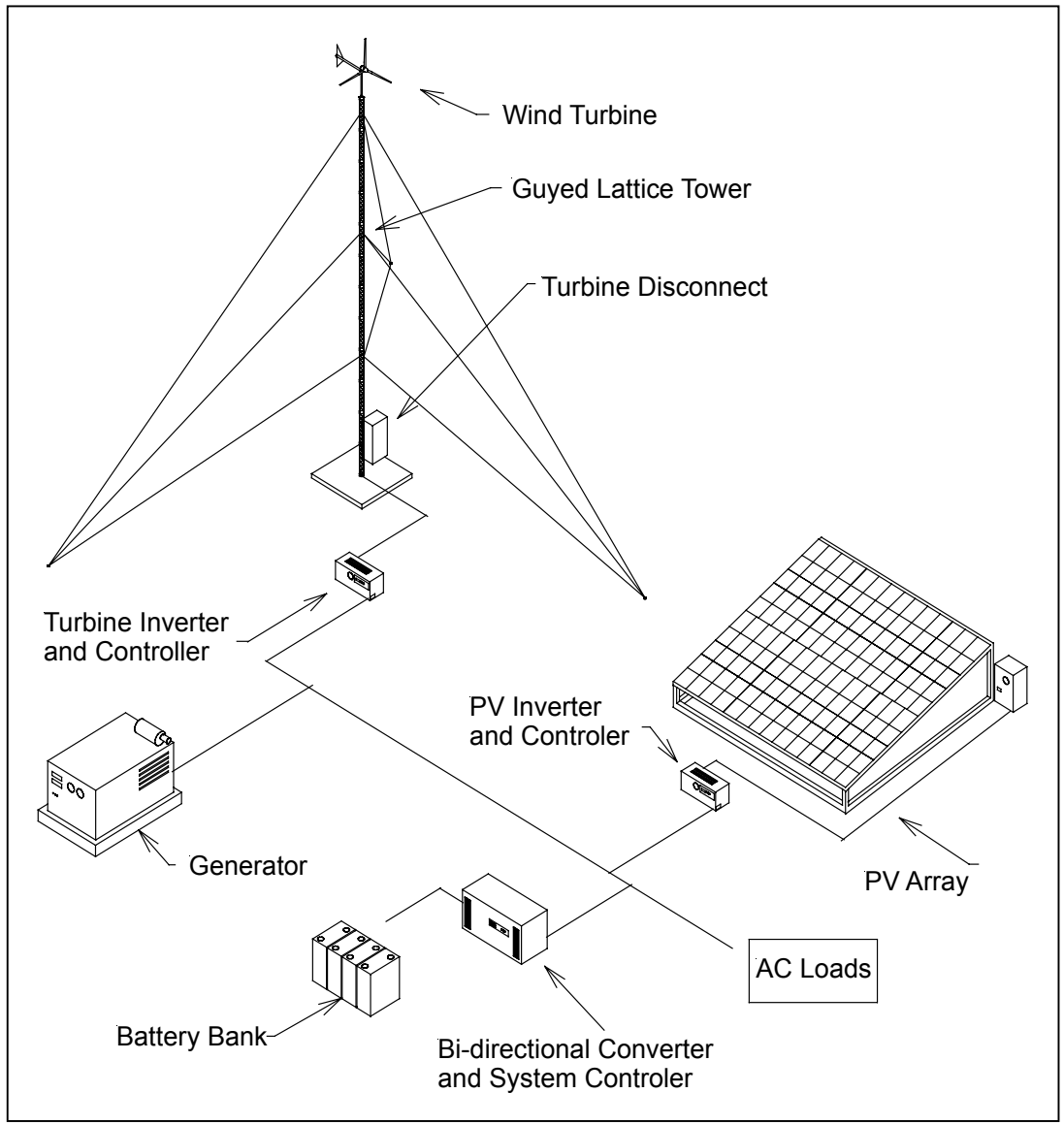
DC based hybrid power system without backup



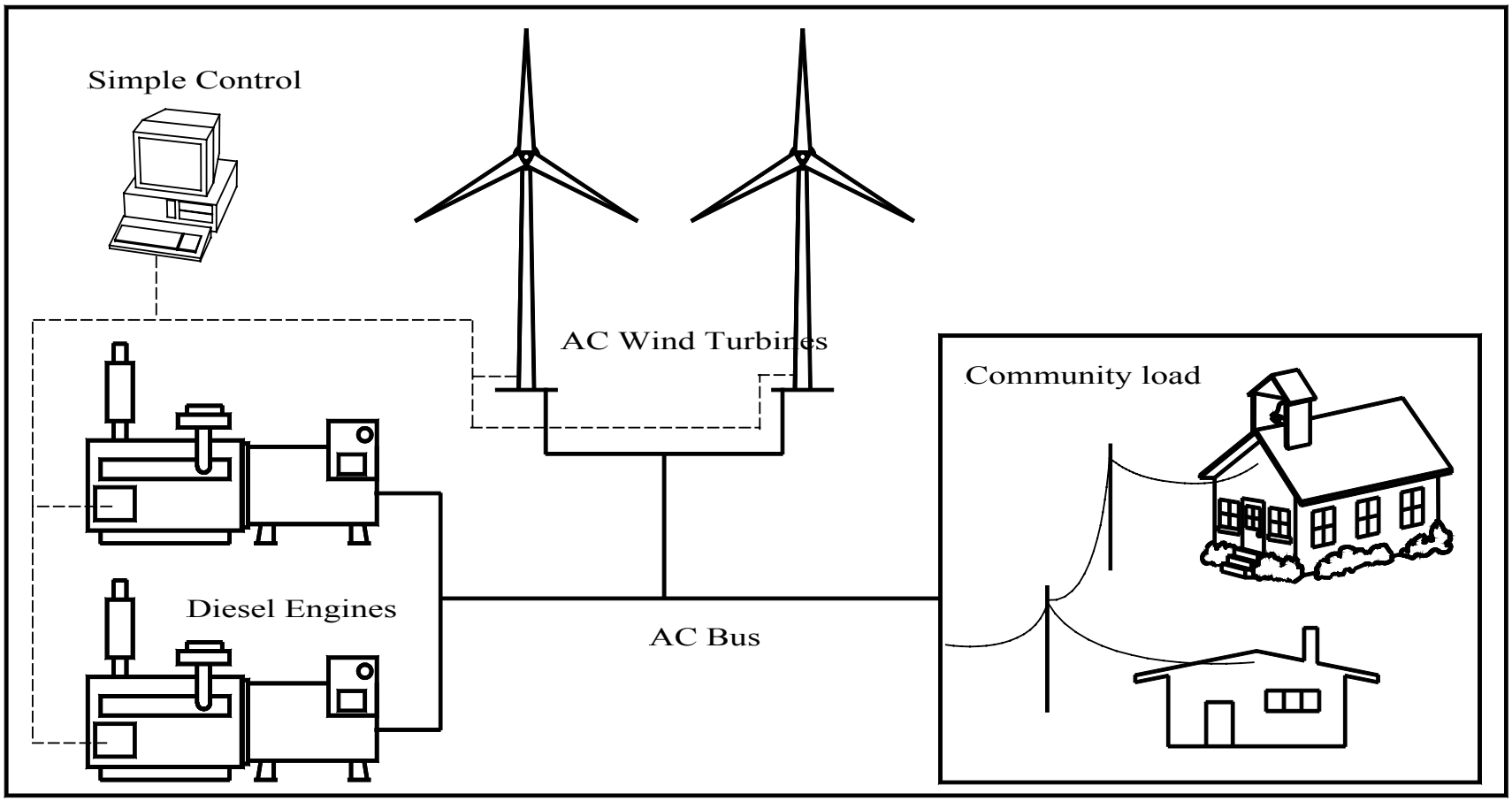
DC based hybrid power system with backup



AC based hybrid power system with backup

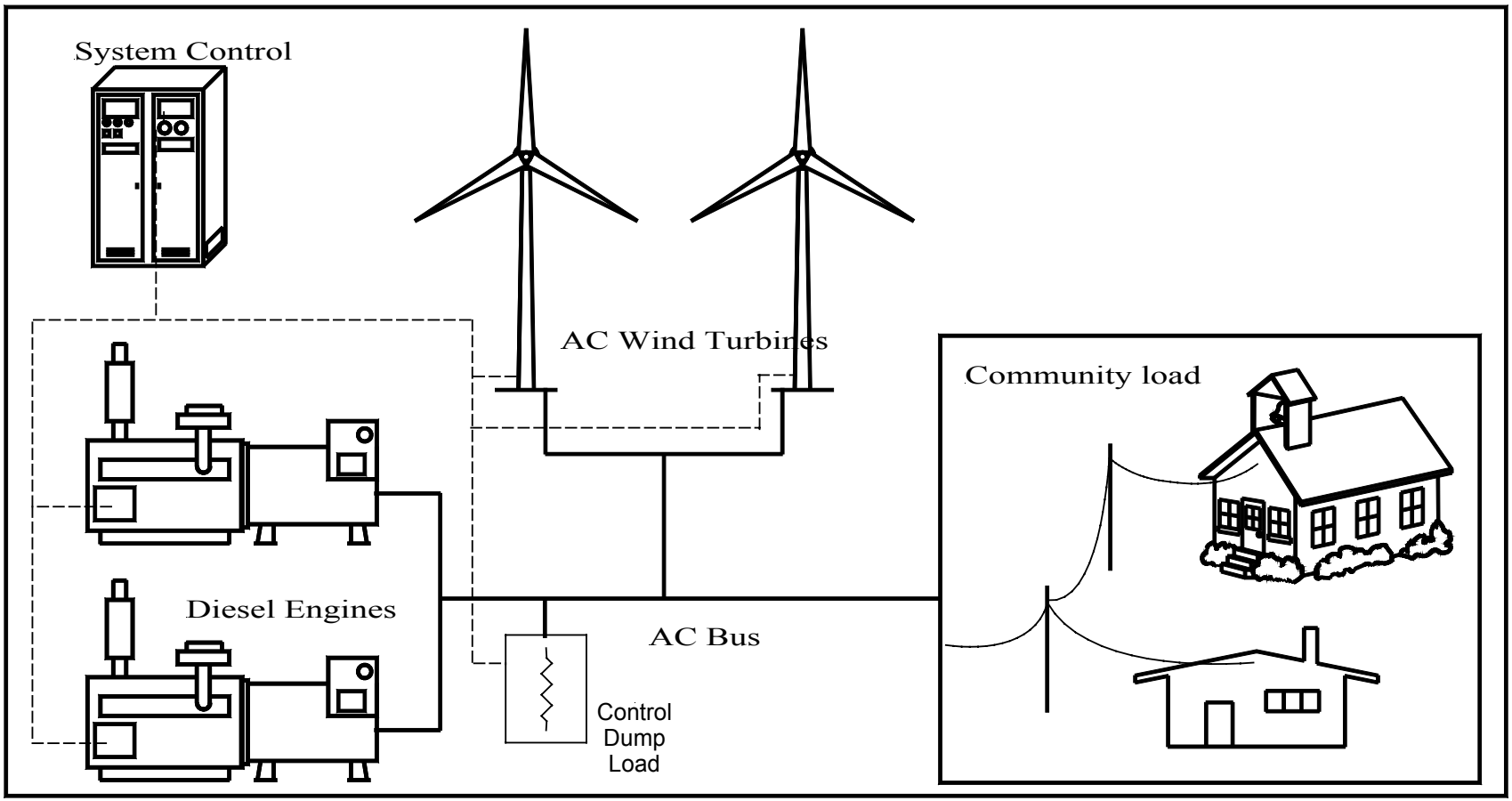


Low penetration diesel without storage



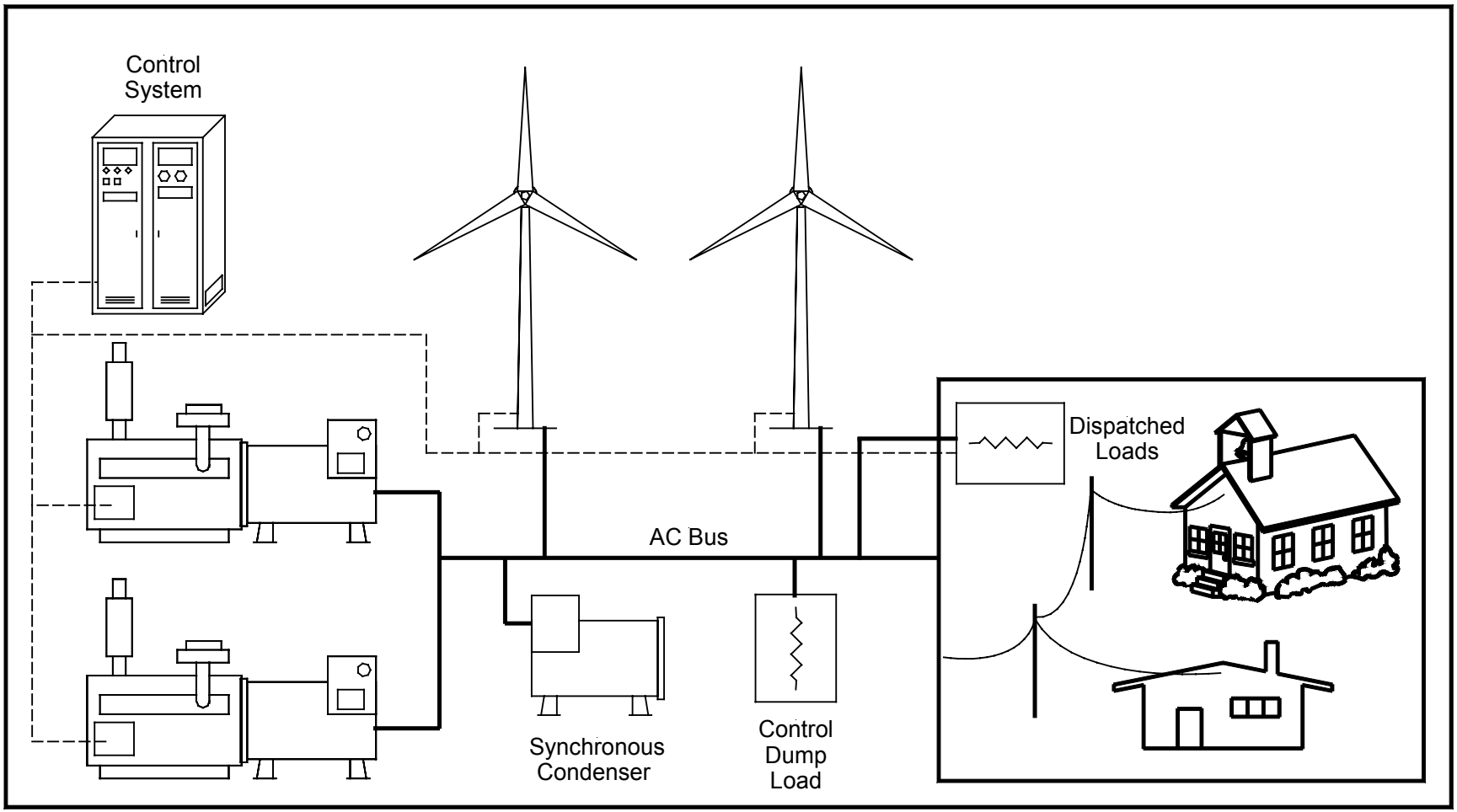
Wind turbines only supply a portion of the load (~20%). Diesel governor and voltage controls maintain system power quality

Medium penetration diesel without storage



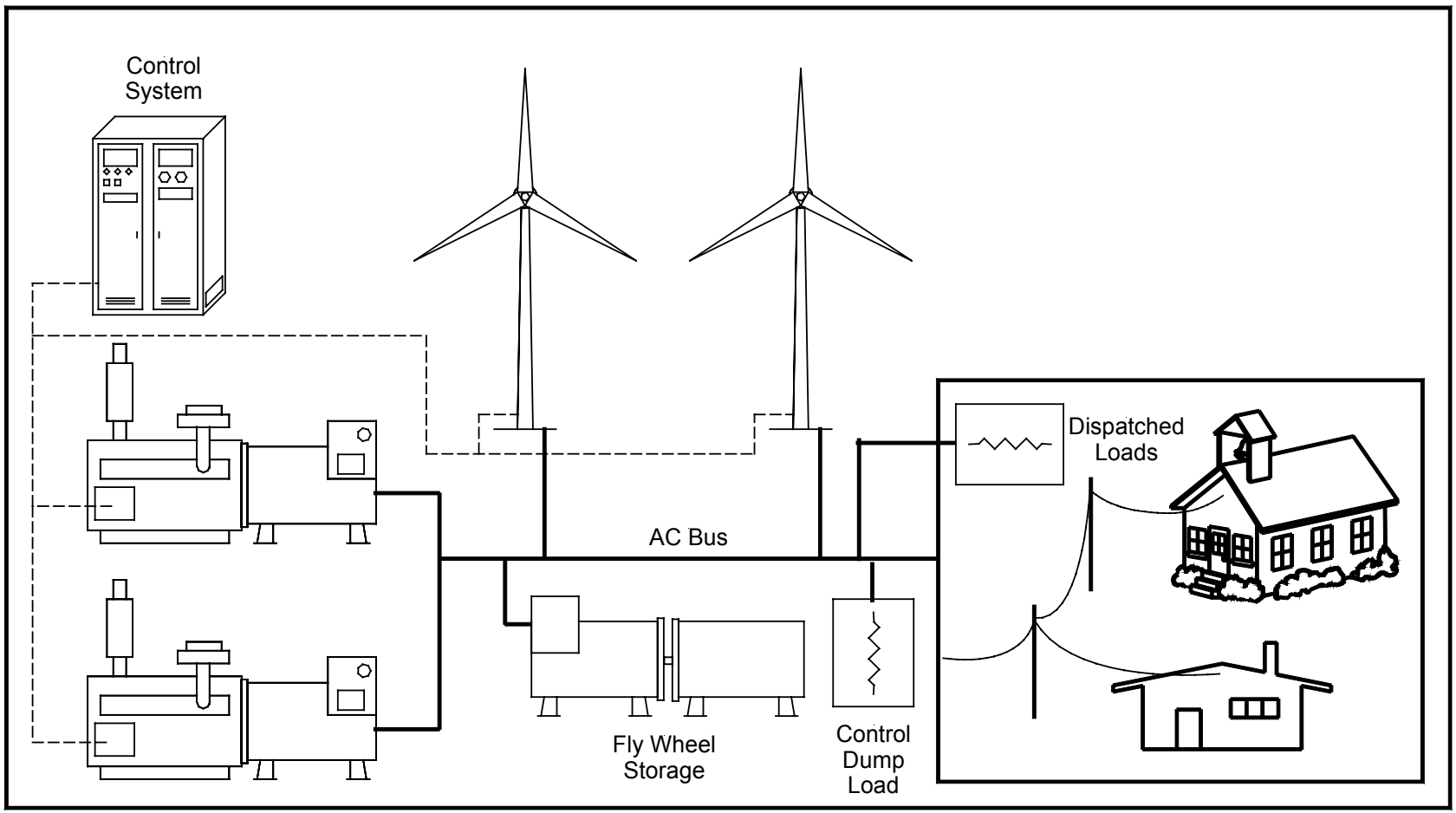
Wind turbines supply a portion of the load (~50%). Diesel always operates with governor and voltage controls maintain system power quality with support of dump load.

Wind Diesel without storage



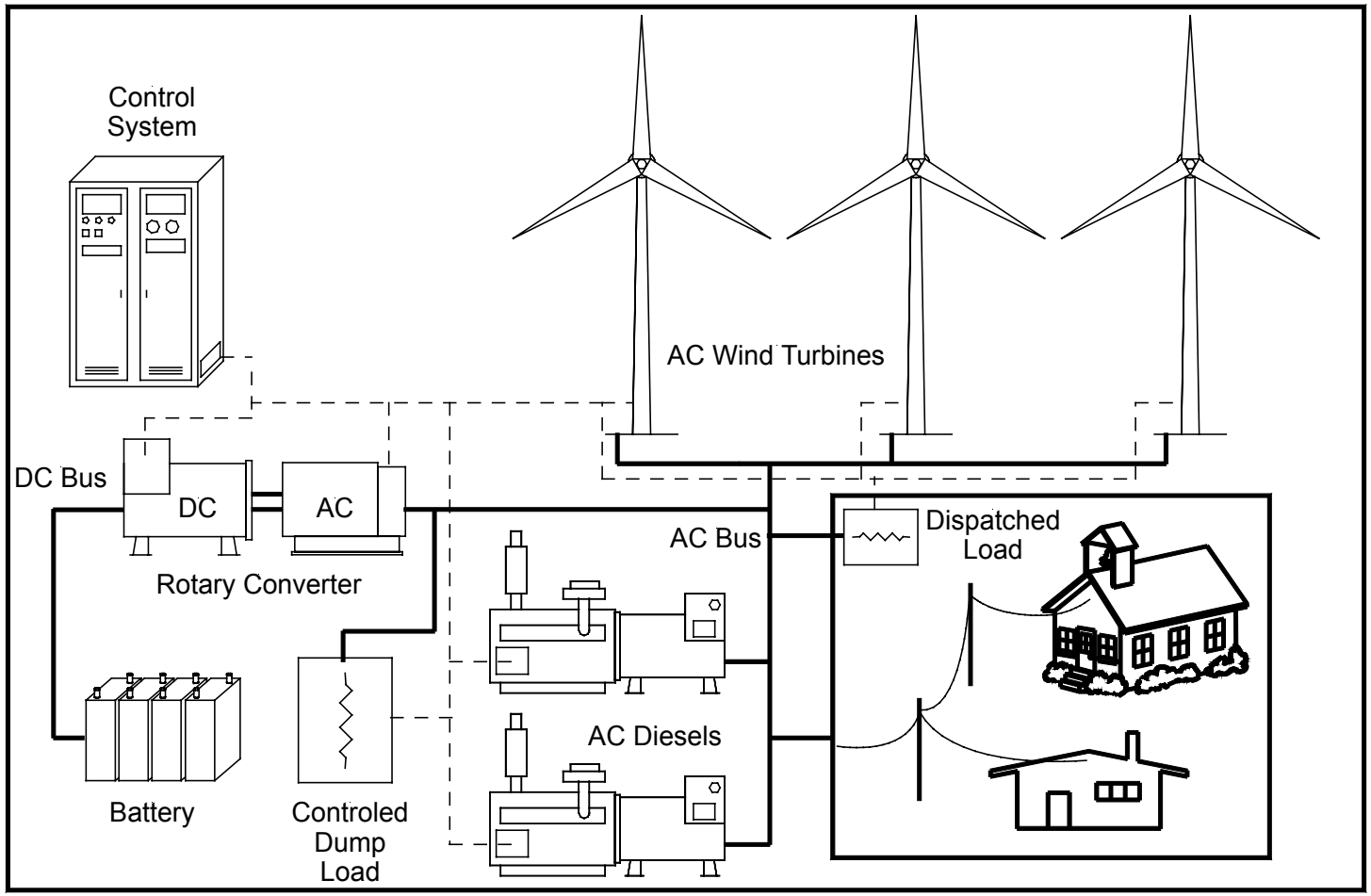
Synchronous condenser and dump load used to control voltage and Frequency. Dispatched loads used to consume extra energy

Wind Diesel with Flywheel Storage



Synchronous condenser and Flywheel provide short term back up (5 minutes) and voltage control. Dump load controls frequency. Dispatched loads used to consume extra energy

Wind Diesel with battery storage



Rotary converter and battery provide short term storage (30 minutes) and can provide voltage control. Dump load used for frequency control. Dispatched loads used to consume extra energy